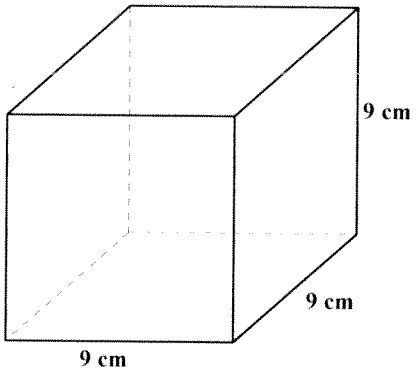
Geometry *Surface Area & Volume, Practice*

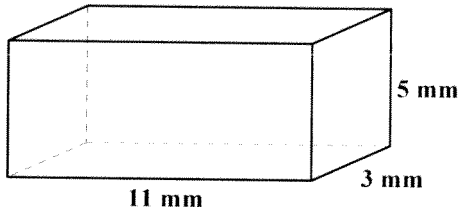
CMIT #12

In Problems #1 - #4, find the surface area and volume of each prism.

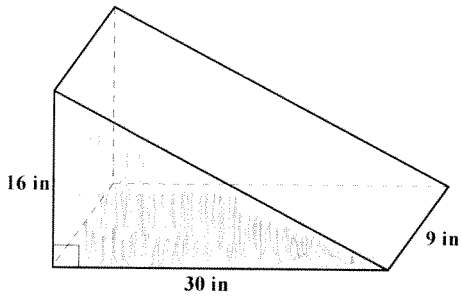
1. CUBE



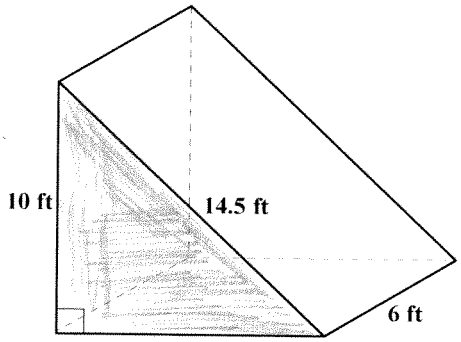
2. RECTANGULAR PRISM



3. TRIANGULAR PRISM



4. TRIANGULAR PRISM



5. A rectangular prism has a surface area of 448 cm^2. Its length is 14 cm and its width is 6 cm. Find its height.

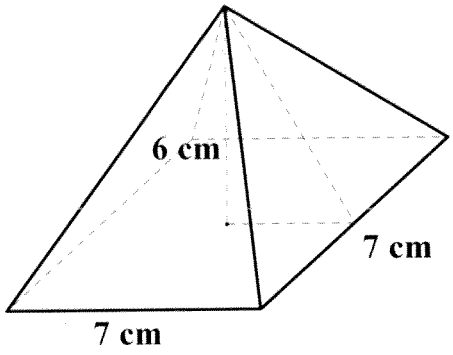
6. A cylinder has a radius of 12 cm and a height of 15 cm. Find its surface area and volume. Express your answer in terms of π, or round your answer to two decimal places.

7. A cylinder has a diameter of 10 in and a height of 5 in. Find its surface area and volume. Express your answer in terms of π, or round your answer to two decimal places.

8. A cylinder has a radius of 7.5 mm and a height of 12.5 mm. Find its surface area and volume. Express your answer in terms of π, or round your answer to two decimal places.

In Problems #9 - #12, find the volume of each pyramid.

9.



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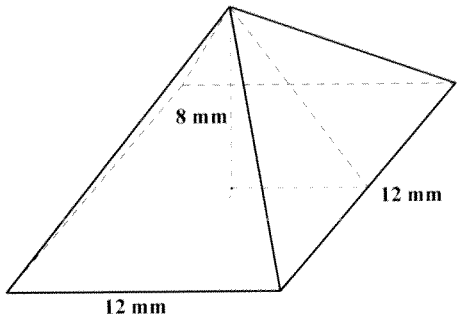
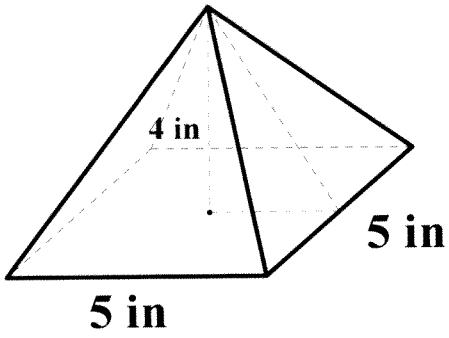


11.



12. A pyramid has a hexagon for its base. Each edge of the base is 15 feet, and the height of the pyramid is 10 feet.

13. Find the volume of a cone has a radius of 12 cm and a height of 20 cm. Express your answer in terms of π, or round your answer to two decimal places.

14. Find the volume of a cone has a diameter of 24 mm and a height of 15 mm. Express your answer in terms of π, or round your answer to two decimal places.

15. Find the volume of a cone has a radius of 16 in and a height of 19 in. Express your answer in terms of π, or round your answer to two decimal places.

16. A cone has a volume of 112π cm^3 and a height of 21 cm. Find its radius.

17. A sphere has a radius of 24 cm. Find its surface area and its volume. Express your answer in terms of π, or round your answer to two decimal places.

18. A sphere has a diameter of 3 feet. Find its surface area and its volume. Express your answer in terms of π, or round your answer to two decimal places.

19. A sphere has a radius of 8 mm. Find its surface area and its volume. Express your answer in terms of π, or round your answer to two decimal places.

20. A sphere with a diameter of 30 inches is placed in a cube. The sphere touches the lateral faces and the bases of the cube. Find the dimensions of the cube, the volume of the cube, the volume of the sphere, and the volume inside the cube that is not taken up by the sphere.

****************************** ANSWERS ******************************

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***********ANSWERS*********

1) SA = 486 cm^2, V = 729 cm^3

2) SA = 206 mm^2, V = 165 mm^3

3) SA = 1,200 in^2, V = 4,320 in^3

4) 315 ft^2, V = 315 ft^3

5) 7 cm

6) SA = 648π cm^2 = 2,035.75 cm^2;
Volume = 2160π cm^3 = 6,785.84 cm^3

7) SA = 100π in^2 = 314,16 in^2;
Volume = 125π in^3 = 392.70 in^3

8) SA = 300π mm^2 = 942.48 mm^2;
V = 703.125π mm^3 = 2,208.93 mm^3

9) 98 cm^3

10) 384 mm^3

11) 33.33 in^3

12) $1{,}125\sqrt{3}$ ft^3 = 1,948.56 ft^3

13) 960π cm^3 = 3,015.93 cm^3

14) 720π mm^3 = 2,261.95 mm^3

15) $1{,}621.33\pi$ in^3 = 5,093.57 in^3

16) 4 cm

17) SA = $2{,}304\pi$ cm^2 = 7238.23 cm^2;
V = $18{,}432\pi$ cm^3 = 57,905.84 cm^3

18) SA = 9π ft^2 = 28.27 ft^2;
V = 4.5π ft^3 = 14.14 ft^3

19) SA = 256π mm^2 = 804.25 mm^2;
V = 682.67π mm^3 = 2,144.66 mm^3

20) Dimensions of cube = 30 in by 30 in by 30 in;
Volume of cube = 27,000 in^3; Volume of sphere = $4{,}500\pi$ in^3 = 14,137.17 in^3;
Volume inside cube not taken up by sphere = 12,862.83 in^3